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09/654,087	09/01/2000	Kazuyuki Fukuda	500.39005X00	5932

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EXAMINER

SEDIGHIAN, REZA

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 12/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/654,087

Applicant(s)

FUKUDA ET AL.

Examiner

M. R. Sedighian

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7. 6) ☐ Other:

Art Unit: 2633

1. This communication is responsive to applicant's 10/7/2003 amendments in the application of Kazuyuki Fukuda et al. for "Optical Transmitter Module" filed 9/1/2000. The amendments have been entered. Claims 1-16 are now pending.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishikawa Toru et al. (Japanese Patent No: 11-295560).

Regarding claims 1 and 5-6, Nishikawa teaches an optical transmitter module (fig. 1) which has an optical semiconductor element (103, fig. 1), an optical fiber (105a, fig. 1) optically coupled to said optical semiconductor element (103, fig. 1), an inline optical isolator (112, fig. 1, note that element 112, or fixing resin 112 provide isolation for the optical fiber 105a) provided for said optical fiber (105a, fig. 1), and a package case (100, fig. 1) containing said optical semiconductor element (103, fig. 1) and said optical fiber (105a, fig. 1), comprising: a substrate member (the substrate underneath element 102) with one end of said optical fiber on the light incident side fixed thereon to be optically coupled to said optical semiconductor element (one end of optical fiber 105a is fixed to the semiconductor laser element 103); a thermoelectric cooler (101, fig. 1) with said substrate member joined to a top surface thereof (the substrate member is at the top of cooler 101); and a pipe-like support member (111, fig. 1) projecting from the side face of said package case (100, fig. 1) for fixing said optical isolator (optical isolator 112

Att Unit: 2633

is fixed to support member 111), wherein the optical isolator (112, fig. 1, note that fixing resin 112 provide isolation for the optical fiber 105a) is joined on its whole perimeter to the pipe-like support member (note that optical isolator, or fixing resin 112, is joined on its perimeter by the pip-like shape 111, or the pipe-like shape 111 surrounds the optical isolator 112 on its perimeter) at a distal end thereof so as to be fixed to the pipe-like support member (the pipe-like support member 111 is at the distal end of package 100).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa Toru et al. (Japanese Patent No: 11-295560) in view of Timmermann (US Patent No: 4,137,060).

Regarding claim 2, Nishikawa differs from the claimed invention in that Nishikawa does not disclose the end of said optical fiber is spherical or conical in shape. Timmermann teaches an optical fiber (1, fig. 1) with spherical end (col. 2, lines 29-31 and 4, fig. 1). Therefore, it would have been obvious to an artisan at the time of invention to incorporate an optical fiber having an spherical end, as it is taught by Timmermann, for the optical fiber in the transmitting module of Nishikawa in order to increase the light coupling efficiency.

Att Unit: 2633

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa Toru et al. (Japanese Patent No: 11-295560) in view of Shibukawa et al. (US Patent No: 5,049,429), or in view of Lemaire et al. (US patent No: 5,478,371).

Regarding claim 3, Nishikawa differs from the claimed invention in that Nishikawa does not disclose the length of said optical fiber is 15 to 25 mm. Shibukawa teaches an optical fiber of length 15 mm (col. 6, lines 60-62). Lemaire teaches an optical fiber of length 25 mm (col. 4, line 66). Therefore, it would have been obvious to an artisan at the time of invention to incorporate an optical fiber of length 15 to 25 mm, as it is taught by Shibukawa or Lemaire, for the optical fiber in the transmitting module of Nishikawa in order to provide an optical fiber of sufficient length.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa Toru et al. (Japanese Patent No: 11-295560) in view of Eales et al. (US patent No: 4,615,031).

Regarding claim 4, Nishikawa differs from the claimed invention in that Nishikawa does not disclose optical isolator and the support member are fixed to each other through laser welding or brazing. Eales teaches a method of laser welding (col. 1, lines 52-54) or brazing (col. 3, lines 12-14) for positioning optical elements. Therefore, it would have been obvious to an artisan at the time of invention to incorporate a method of laser welding, or brazing, as it is taught by Eales, to fix the optical isolator and the support member in the transmitting module of Nishikawa to provide a fixing method in which there can be minimal relaxation and hence relative movement of the components.

8. Claims 1, 5-7, and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibnuma (US Patent No: 4,803,689) in view of Shimizu (US Patent No: 5,960,142).

Regarding claims 1, 5-7, and 11-13, Shibnuma teaches an optical transmitter module (fig. 1B), comprising: a thermoelectric cooler (8, fig. 1B) positioned inside a package (9', fig. 1B); a substrate (7', fig. 1B) mounted on the thermoelectric cooler (9', fig. 1B); an optical semiconductor element (1, fig. 9B); an optical fiber (14', fig. 1B) disposed on the substrate (7', fig. 1B) and optically coupled to the semiconductor element (1, fig. 1B); an optical isolator (15', fig. 1B) disposed outside of the package case and aligned with the optical fiber (note that cylinder 15' provide an isolation or protection for the fiber 14' that is extended to outside of package case module 9'); a pipe-like support member (11', fig. 1B) projecting from the side face of the package case to fix the optical isolator (15', fig. 1B), wherein the optical isolator is joined on its perimeter to the pipe-like support member at a distal end thereof so as to be fixed to the pipe-like support member (note that cylinder 15' is joined on its perimeter to the pipe-like support member 11' at a distal end of package case 9'). Shibnuma differs from the claimed invention in that Shibnuma does not specifically teach the optical isolator provide a substantially collimated light beam or a substantially converged light beam by a lens that is disposed outside of the package case. However, Shibnuma in a different embodiment (fig. 2B) teaches a cylindrical projecting portion 11 at a side of a transmission module 9, and that is comprised of a lens 13, a glass plate 27, and a fiber 14, which are protected by a metal cylinder 15 (col. 7, lines 21-51). Likewise, Shimizu teaches a semiconductor laser module (10, fig. 1) with a laser (14, fig. 1) that is disposed on a substrate (13, fig. 1) inside a package case (11, fig. 1), wherein the package case is connected to a lens (16, fig. 1) and to a fiber (19, fig. 1) through a

Art Unit: 2633

protecting cylindrical member (17, fig. 1 and col. 3, lines 1-42). It is well known in the field of optical communication to incorporate a lens along the optical path or along the optical fiber to converge the light for further transmission. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate an output cylindrical protection structure with a lens such as the one of Shimizu for the output protection cylinder 15' of Shibamura to further collimate or converge the output light beam.

Regarding claim 14, Shibamura teaches the end of the fiber is spherical (col. 2, lines 10-12).

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibamura (US Patent No: 4,803,689) in view of Shimizu (US Patent No: 5,960,142) and in further view of Shibukawa et al. (US Patent No: 5,049,429), or in view of Lemaire et al. (US patent No: 5,478,371).

Regarding claim 15, the modified optical transmission module of Shibamura and Shimizu further differs from the claimed invention in that Shibamura and Shimizu do not disclose the length of the optical fiber is 15 to 25 mm. Shibukawa teaches an optical fiber of length 15 mm (col. 6, lines 60-62). Lemaire teaches an optical fiber of length 25 mm (col. 4, line 66). Therefore, it would have been obvious to an artisan at the time of invention to incorporate an optical fiber of length 15 to 25 mm, as it is taught by Shibukawa or Lemaire, for the optical fiber in the modified optical transmitter module of Shibamura and Shimizu in order to provide an optical fiber of sufficient length.

10. Claims 8-10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibamura (US Patent No: 4,803,689) in view of Shimizu (US Patent No: 5,960,142) and in further view of Tatsuta (US patent No: 6,108,359).

Regarding claims 8-10 and 16, the modified optical transmission module of Shibamura and Shimizu further differs from the claimed invention in that Shibamura and Shimizu do not disclose an optical fiber in a bent state. Tatsuta discloses a laser diode module (fig. 1), wherein an optical fiber (6, fig. 1) can be in a bent state (col. 3, lines 8-22). Therefore, it would have been obvious to an artisan at the time of invention that an optical fiber such as the one used in the modified optical transmission module of Shibamura and Shimizu can be incorporated in a bent state, or it can become into a bent state, as it is taught by Tatsuta, for purposes of wire bonding or to reduce stress applied to the fiber.

11. Applicant's arguments filed 10/7/2003 have been fully considered but they are not persuasive.

Remark states Nishikawa teaches an isolator 213, as it is shown in fig. 7, that is mounted on a base 202, and which is not joined to a pipe-like member 111. Remark further states Nishikawa teaches a fixing resin 112, as shown in fig. 1, to fix the optical fiber 105, and does not denote an inline optical isolator. Claims 1 and 5-6, each recites "... an inline optical isolator provided for the optical fiber ...". Nishikawa teaches an optical element 112, or a fixing resin 112, as it is shown in fig. 1, that provides an optical isolation for the optical fiber 105a. Note that a fixing resin can cover an optical waveguide and it can provide isolation for the waveguide. The fixing resin, or the optical isolator 112, is joined on its whole perimeter by a



Art Unit: 2633

pipe-like support member 111 that is disposed at a distal end of a package case 100. Applicant's attention is directed that during the prosecution of a pending patent application the terms found in the claims should be given the broadest reasonable interpretation, *See in re Pearson*, 181 USPQ 641 (CCPA 1974).

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (703) 308-9063. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

Art Unit: 2633

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703) 305-4729. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

  
M.R. SEDIGHIAN  
Patent Examiner  
Art Unit: 2633